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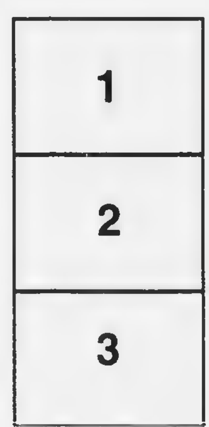
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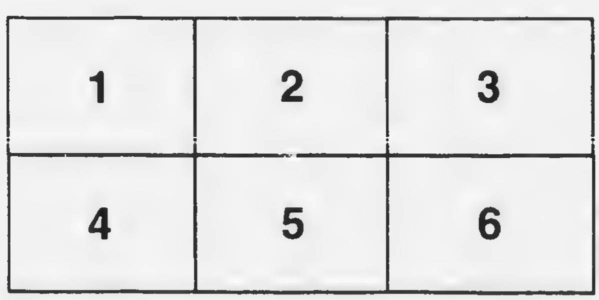
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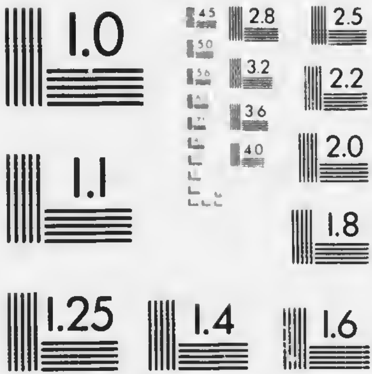

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BY

T. A. RICKARD
EDITOR OF THE "MINING & SCIENTIFIC PRESS"
SAN FRANCISCO

at the

INTERNATIONAL MINING CONVENTION
IN VANCOUVER, BRITISH COLUMBIA
ON MARCH 17th, 1919

Mining--

An Investment, a Speculation or, a Gamble?

With Compliments of
British Columbia Chamber of Mines
Vancouver, Canada.


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PREFACE

THIS paper by Mr. T. A. Rickard, is one which the B. C. Chamber of Mines takes great pleasure in presenting in published form to its friends. Few men because of their extensive travel, experience or association with the mining public can speak with more authority. Mr. Rickard has shown that money placed in mining is neither an investment nor a gamble, but a speculation. In fact, according to Mr. Rickard's definition few things outside of certain government bonds can be considered investments. He makes one point very clear and that is—the degree of speculation varies inversely with the scientific and engineering judgment which is associated with the money.

There are three points which the writer of the preface is sure Mr. Rickard would agree and which, if true, make mining almost an investment.

The first of these is that government monies spent under proper technical guidance in mining is like government monies spent on railways. In the latter case the railroads do not always pay dividends as such, but few railroads built through promising areas have failed indirectly to pay handsome returns to the government in the form of taxes on the industries developed. In like manner will a government be well paid for monies used to stimulate the mining industry—particularly in B. C.

Another point is that monies spent in mining may be considered well invested if divided so as to spread the risk. To be specific, suppose an individual were to place $1,000 into 20 different mining enterprises all properly endorsed by geological and mining engineers in lots of $50 each. This would probably be a very safe investment. One of the prospective mines would no doubt develop and pay back the $1,000 with a good profit.

The third point is that monies put into mines may never be returned by the mine, but may indirectly pay handsome dividends and hence as such become investments. Suppose the business men of Vancouver for example were to take a more intelligent interest in mining and to support such prospective mines as have the endorsement of qualified engineers. This interest and

support would greatly stimulate mining in the province. The mines so developed through the purchase of machinery, food, clothing, and the stimulation of kindred and related industries and the attraction of outside capital would cause a great deal of money to circulate, which, indirectly, would benefit the citizens of Vancouver. If it is true, and there can be no doubt of this—that the future of B. C. depends on its mining industry—then as part of the whole, the future of Vancouver is intimately wrapped up in the development of the province. Therefore a business man of Vancouver cannot be considered a good citizen unless he strongly supports the chief interest of the city. This is a point which must not be forgotten.

There is one point of Mr. Rickard's which the writer wishes particularly to stress, namely that the speculative phase of mining disappears in so far as it is guided by proper technical advice. Mining is a business requiring the highest grade of scientific and engineering direction. Most mining failures can be related to the failure to recognize this point on the part of the investor and promotor. Individuals seeking money for mining enterprises should show that they have had their proposition thoroughly investigated by reliable authorities. and individuals not so fortified should be looked upon either as densely ignorant of the fundamentals of mining promotion or as avowedly dishonst.

EDWIN T. HODGE, M.A., Ph. D.

Professor of Geology, University of British Columbia.

Vancouver. Canada.
2nd April, 1919.

MINING

An Investment, a Speculation, or, a Gamble?

By

T. A. RICKARD

MONEY can be employed profitably in three ways: investment, speculation, gambling. An investment looks to income; the use of the word assumes the comparative safety and stability of the principal. A speculation looks to an increase of the principal; the use of this word suggests the minor importance of interest, income, or return on capital; it assumes not the stability, but the comparatively rapid appreciation of the principal. A gamble involves a risk so large as to require the aid of luck; it ignores interest or income; it anticipates the alternative of a big winning or a total loss.

Obviously the definition is subjective; it is based upon the expectation of the individual making the purchase. To one man the use of money for a certain purpose is an investment; to another man the same use appears to be a speculation. Similarly, one man's speculation is another man's gamble. Six years ago Mr. Lloyd George and Lord Reading, then Sir Rufus Isaacs, were persuaded by Mr. Godfrey Isaacs, a brother of the present British Ambassador and Lord Chief Justice, to buy a block of American Marconi shares as an 'investment,' that is, as a steady dividend-payer. Three days after Mr. Lloyd George had bought his shares they rose so rapidly that he sold them, on the urgent advice of his broker, to whom he was disinclined to listen because his intention was to hold the stock "as an investment." He was then Chancellor of the Exchequer, therefore, he was hauled over the coals for 'speculating'; he was charged with a levity of conduct unbecoming the chief of the British treasury. He replied by saying that when he bought the shares it was his intention to hold them indefinitely, and that the sudden and surprising rise justified him in selling. In short, his 'investment' had proved a 'speculation.' The distinction is in the mind of the purchaser.

Similarly, a Boston school teacher may buy the shares of the Great Wildcat Extended as an 'investment,' whereas a Wall street broker recognizes that it is highly 'speculative,' and a Nevadan mining engineer knows that it is a rank 'gamble.' These terms are relative, they connote a crescendo of risk; even an investment has a slight element of risk; a speculation has more; a gamble, most. Sometimes a stock is bought on the expectation of a rise; it remains steady for years, it proves to be what is call-

ed a 'forced' investment. The idea of expectation is implicit: the human factor is never absent; we are dealing not with lexicons, but with human affairs.

The other significant word is 'mines.' A mine is an excavation in the earth's surface from which mineral is extracted. It is not a company nor the shares of a company owning that excavation. A flippant definition says that a mine is a hole in the ground with a liar sitting on top. A promoter is said to be a man who sells something he has not got to somebody who does not want it, or, if you prefer, a promotor tries to sell nothing for something to a man who expects something for nothing. However, these perversions of honest business do not concern us for the moment; my subject is the reasonable speculation that is based upon the legitimate exploitation of mines. Permit me to remind you that the word 'mine' was used in the language of warfare before it entered that of peaceful industry. It comes to us through the Latin mina, signifying an excavation to be used for killing the enemy. The original sense of the word survives in 'minatory,' meaning threatening. During the war we have heard more of mines in the North Sea than of mines in Mexico, for example, and you will allow that those who sailed the seven seas had to deal much with speculation concerning mines, and the floating of mines on water, reminging us of minatory performances on the stock exchange during times of peace. Now, however, we hope soon to forget the derivation of the word and to interpret it, not in terms of maleficent activity, but of beneficent industry.

You will note that I have chosen 'speculation' in preference either to 'investment' or 'gamblin' as being more appropriate to mining. The use of money in mining is seldom an 'investment'; usually when it is meant to be so it affords an example of the triumph of hope over experience. I admit that certain forms of iron and coal mining on a large scale are characterized by such security, continuity, and steadiness of income as to be 'investments,' but the mining of the so-called base metals or of the precious metals, in which most of you are engaged, does not come within the category. In metal mining the chance of a considerable risk and of a correspondingly large gain is inherent. Some of you will demur, you will point at the Homestake, the Bunker Hill & Sullivan, or the Utah Copper as examples of an investment, as representing a type of security so safe as to be gilt-edged, but I venture to say that your opinion is ex post facto, you are writing last year's almanac, you are wise after the event. The history of such persistently profitable mines causes you to regard them as safe because you can retrace their history for ten, twenty, or thirty years. You imagine yourself buying into such mines soon after they had undergone preliminary development, and you know that if you had done so at an early date your purchase would have proved extremely remunerative; but I submit that in the early stages of development these splendid enterprises were speculative, as is suggested by the fact that these successful ones are a few survivors from the much larger number that were started at about the same time and proved disappointing. I may remind you, to make my point quite clear, that many of the famous mines of the world 'broke' those who first

attempted to bring them to financial success. If today you were to advise a widow to put her savings in any one of the three magnificent mines that I have instanced, you would, in my opinion, be an unwise counselor, because, looking forward, not backward, for ten or twenty years, they would represent a speculative use of the widow's savings. You might be sagacious in using your own money for such a purchase, because you could take the relatively small risk for the sake of the probably large gain, but the widow would be better advised to buy Liberty bonds.

At this stage of my argument I beg you not to be annoyed at my apparently over-cautious attitude; you will find that my conclusions will not depreciate the industry in which you and I alike are so deeply interested. I shall hammer my point home by one further suggestion. You would not be willing to lock up your mining stock in a safe for five or ten years, as you might do with first-class bonds; you know that in the course of five years the fluctuations in market-value are likely to be so wide as to compel you in your judgment either to cut a loss or take advantage of a market-profit. On the other hand, a mine is not a 'gamble,' because the risk it involves is not unreasonable; it is diminished by knowledge and experience, it is lessened by the skill you can apply both to the finding and to the treatment of the ore. A miner always needs some luck, of course, but his luck is a friendly sprite, not the grinning devil that sits by the roulette-wheel. Every business involves one or more indeterminate factors and therefore, contains an element of risk. Without risk there is no gain; but a large gain usually involves a large risk. There are people in mining, of course, that take big odds, that like a reckless bet; they are real gamblers, even if they are unaware of it; but the risks taken in legitimate mining are under some measure of control, they are met by scientific knowledge and by trained intelligence. A blend of pluck and judgment is required. You will recall a line in Kipling's poem, 'The Merry Gloster': "And I took the chances they wouldn't and now they're calling it luck." That is why I insist that mining, properly conducted, is not a gamble. On the other hand, no man of experience in these matters would expect to escape all the risk. The idea of eliminating risk from mining is both contrary to the spirit of the business and false to the history of it. To understand mining—to appreciate the principles guiding legitimate and successful speculation in mines—which is my subject—you must revert to the old Cornish word for shareholders; they were called 'adventurers,' that is, men willing to make a venture.

Indeed the idea of avoiding risk in mining is a pathetic fallacy; a puerile endeavor to escape the inevitable. The attempt to find mines that would involve no risk to the capital sunk in them has tended to cripple the industry; the refusal of sundry so-called exploration companies to incur risk has stultified their operations and paralyzed development. And I may add that this policy has warped the judgment of some otherwise brilliant engineers. The story is told that Marcus Daly sent a mining engineer on a scouting expedition; he examined many prospects, without finding anything worth while. Daly became impatient; he slapped the engineer on the shoulder and exclaimed: "For God's sake, man,

go out and spend some money." There is too much of a desire to play safe by buying mines with large blocks of proved ore, and to make money by means of an enlarged scale of operations, increased skill, or improved methods of metallurgy. The finding of ore, which is the real adventure, is relegated to the background; it is not only the chief attraction of mining, but the one that wins the greatest reward. When the ore-reserves of a mine are at a low ebb it may be the most speculatively attractive time to buy the property. There are those who say that the mining of the future will be the economic harvesting of known ore deposits of low grade, the beneficiation of masses of mineral already discovered, but heretofore regarded as too refractory for successful metallurgic treatment, that is, the utilization of the visible supply of skimmed milk instead of the finding of the metallic cream concentrated by the patient operations of nature. I doubt that; the world is still young, and but half-explored, as is suggested by such discoveries as those of Nome, Cobalt, Porcupine, Tonopah, Goldfield, the United Verde Extension, the Bawdwin mines in Burma, and a host of other bonanza during the last twenty years.

One does not need to be venerable in order to recall great changes in the philosophy of mining economics. In 1905 I published a book on this subject, in which was included a discussion upon various aspects of mining finance. Among those contributing, besides myself, were H. C. Hoover, J. H. Curle, and W. R. Ingalls. Mr. Curle, at that time the leading London authority on such matters, a man of wide travel and stalwart independence of mind, advised his countrymen to stick to gold mining as being the safest because gold had a "fixed value." We know today, by unpleasant experience, that gold can so depreciate in terms of other commodities that the gold miner is placed at a decided disadvantage. Mr. Curle insisted that the only correct kind of gold mining was based upon a careful estimate of the ore in reserve, and that at least 60 per cent. of the price of the mine ought to be represented by net profit from the developed ore. He even went so far as to lay down the rule that gold mines should yield 10 per cent. on their market valuation. Later he put the interest at 15 per cent. We have traveled far since then. Most of these obiter dicta served a purpose in their day, fifteen years ago, as a means of educating the British shareholder, who is a simple-minded person, because Mr. Curle accompanied them with much straight information and trenchant criticism, but all such attempts to compress mining into a formula are a failure. They were based largely on the experience—then incomplete—of the Rand, in South Africa, where continuous beds of gold-bearing conglomerate were being exploited on the largest scale known to the modern world. These beds of 'banket' as they were called, after the Boer name for almond-cake, were comparatively uniform in their gold contents and were mined and milled so cheaply as to yield handsome profits. Their uniformity of grade and persistence in depth caused them to be regarded as the basis for 'investments' of the safest kind, suitable for widows and orphans. Later experience has shown that they were neither so uniformly nor so persistently rich as had been expected, the result being to turn the 'investments' into 'speculations,' out

of which a comparatively few made a great deal of money and comparatively many lost more than they could afford. The Rand proved to be the greatest goldfield in the world, in extent and in yield, but I am making the point that it did not escape the vicissitudes latent in mining, and the successful effort to persuade the public that it would escape those vicissitudes led, in the end, to a tremendous and widespread loss of money, which passed from the pockets of the public to those of the promoters. Money was made honestly on the Rand during the development stage, when adventurous spirits risked a total loss of their stake in order to make a big gain; but when the operators and promoters turned to the man of small means and persuaded him that the latent risks were eliminated and that a gilt-edge investment was available to him in the stock of over-capitalized mines, they deceived him. Some of the operators and promoters knew no better; others were advised by good engineers, and simply victimized the unsuspecting by unloading their holdings upon them at a handsome premium. To illustrate how the public was victimized, I can state that the market value of the shares in the three principal companies representing consolidations of groups of mines declined $203,931,610 between 1911 and 1918. That huge loss was due to ignoring the common experience that mines eventually become impoverished in depth, just as surely as men grow old, and also to the assumption that a 60 per cent ore-reserve, that is, having 60 per cent of the market value 'in sight' furnished ample security. In the attempt to introduce one or two academic factors of safety the public was led to ignore the very essentials of the business, namely, that it involved no small risk, under the best conditions, and that the risk must be compensated by large dividends. Instead, the public accepted 6 or 7 per cent. as an adequate return and failed to recognize that they held a wasting asset. During the speculative—the frankly adventurous—stage of Rand mining it made money for nearly everybody engaged in it, but when the chicanery of the few was combined with the ignorance of the many into creatiug a false notion that the speculative phase had been transformed into one of secure investment, then it was that share-dealing on the Rand became a cause of great loss to the public and a blot on honest industry. From the moment when the change in sentiment was effected, and the fallacy was established, the mining of the gold became less profitable than the mining of the pockets of the public.

This investment idea, of minimizing risks and limiting possibilities, would soon cause mining to die for want of breath. Before a profitable outcome is assured every mining enterprise must pass through several stages of speculativeness as surely as a child must take the chance of bumps and bruises, of measles and mumps. The biggest fortunes are made during the early stages of development; on the whole, more money is made by selling than by buying mines, simply because the final or so-called investment stage of a first-class mine is likely to represent an over-valuation, caused by an erroneous supposition that the essential hazard is precluded. I would even say that more money has been lost by the over-valuation of the great rich mines of the world, like the Con. Virginia, Mount Morgan, Broken Hill, and Nipissing, than in a multitude of

worthless prospects. Small men lose their money in big mines, and big men in small mines. The inference, therefore, is not to try to get rid of the essential risk—because it cannot be done—but to require a rate of profit proportionate to it. A much more intelligent policy is to engage in such mining as allows a liberal margin both ways, taking a larger risk for the sake of the larger gain, that is, to speculate with eyes wide open and not to invest with eyes half-shut.

Fifteen years ago the careful sampling of ore as a means of valuing mines was becoming advanced to an art and the tendency was to place great reliance upon it, with the consequence that capitalists began to think themselves safe in buying ore. They thought to escape the essential risk by assuring themselves a return of their money, diminishing the speculative features of the business as much as possible. Exploration companies were organized in London, New York, and Boston to scout for promising mines on which to apply the newly developed methods of valuation. Most of these seekers after bonanzas were disappointed; they failed to repeat the successes of the pioneers in this type of mining finance—such as the Exploration Company of the Hamilton & Smith era—because they were too timid; they expected to have their money in sight when they bought a mine; they were looking for a bet on the sure thing, with all the profits of a speculation. They lacked the temperament needed for adventure and should have placed their money in a bank, where at 4 per cent. it would double itself in 15 years. Many directors of these exploration companies bluffed themselves into the idea that they were bold navigators, when as a matter of fact they were only fair-weather sailors.

As I remarked at that time, "ore-reserves are not everything; expansion and development are the essence of successful mining." The big successes have been made by developing prospects into mines, not by buying blocks of ore that have been exhaustively sampled by meticulous young men. The profit to be made must depend upon the further extension of the ore; the larger the proportion of ore already proved the smaller the possibilities beyond. As Mr. Hoover pointed out, the probable depth of extension is more critical than the proportion of profit in sight. He worked out a rough rule for the gold mines of Western Australia, namely, the minimum extension of an ore body in depth should be not less than one-half its length. He called it a 'yard-stick' for use in forming a judgment, but he laid stress on the need for investigating the characteristics of the individual orebody, more particularly its geologic structure and that of the district in which it lies. Such a rough and ready formula, however, would fit only the mines that are dependent on one or two large shoots; it would be of little service in the valuation of mines depending on a series of recurring ore-shoots, as, for example, the Goldfield Consolidated, in Nevada, the Nipissing, at Cobalt, the Yoquivo in Mexico. Mr. Hoover made the shrewd observation that "the quantity of ore in reserve is a matter of management not necessarily dependent on the size of the mine." In 1912 Morton Webber protested against the use of formulas in mine valuation and showed that "the relative magnitude of the ore-reserve in any particular mine is largely a matter of administrative policy." I myself remember,

when practising as a mining engineer, advising a client not to extract the ore in his mine if he hoped to sell it to advantage, as he wished to do. The extension of the orebody was menaced by a fault. He listened to a saw-mill engineer, enlarged his mill from 20 to 40 stamps, extracted all the ore, and barely made enough profit to pay for the enlargement of the plant, leaving a hole in the ground in which several later operators have buried their good money. This was a gold mine in Idaho. Another example occurs to me: a small silver mine in Colorado. The ore was only five inches wide, but high-grade. A carefu' sampling showed $150,000 worth of ore assured, which would yield a net profit of $110,-000. The owners were willing to sell for that sum, half cash and half in six months. I advised my clients not to buy, because the winzes below the adit-level showed that the vein was poor and much faulted. The history of neighboring mines was not promising as to prospects in depth. I considered the business unattractive because the risk of the known ore yielding less than the amount of profit estimated seemed to outweigh the chances of finding more ore. The subsequent story of the mine justified my opinion. On the other hand I advised the purchase of the Camp Bird, in Colorado, for $6,000,000 when the bottom workings looked poor, and gave no promise of the ore persisting, because I believed that horizontal exploration would lead to the uncovering of more ore bodies, especially westward, where the rising surface gave virgin ground increasing to a height of 1200 ft. above the adit. The mine had reserves equal to $6,118,000 gross, but the value of it lay largely in the good prospect of the further finding of rich ore, without sinking, as the sequel proved, for the Camp Bird has produced $20,000,-000 since then, although poor in depth. Please pardon these reminiscences of a time, 20 years ago, when I was a mining engineer, not a journalist; I give them because personal experience is direct evidence.

In 1911 M. H. Burnham contributed a series of articles on sundry principles underlying the finance of mining enterprise, more especially the 'risk-rate.' He insisted rightly that the buyer of mines or of shares in mines should expect not only a bank-rate of interest on his capital, but as much more as will cover the additional risk inherent in the business of mining. If, as I suggested at that time, he bought into the Goldfield Consolidated, in Nevada, then the most productive gold mine in the world, but with a reserve of ore so small as compared with its annual production as to ensure the return of only a small part of its market-value, he, the sane speculator, ought to expect a dividend of 35 per cent. per annum, or 31 per cent. more than the 4 per cent. bank rate, that is, the mine should be valued on the basis of a three years' purchase. This famous mine is now in the hands of lessees: its story has been told, and you can ascertain how nearly right was my diagnosis of the position. However, it is only mentioned as an example. On the other hand, a mine like the New Modderfontein in South Africa or the Homestake in South Dakota might show a life and a standard of production justifying a low estimate of risk, thus warranting a much smaller return, say, 6 per cent. more than the bank-rate. It amounts to this, that after an engineer has examined a mine and measured its ore-reserves, he must determine the risk-

rate at which his client's capital may be used in the purchase of that particular property. This risk-rate will be based upon the past history, the present condition, and the future prospects of the mine.

The sampling of mines has been allowed to obscure the need for good judgment. It is also another phase of the attempt to make an investment out of a speculation. The ore in reserve in a mine should be regarded chiefly as an indicator of the probability of being able to find and develop more ore of the same grade. The expectation of a profitable venture should be based not upon the extraction of the known ore, but upon the chances of further intelligent search.

A so-called 5 per cent. investment in a metal mine is an unwise use of money, because the interest is too small for the risk, whereas a 20 to 25 per cent. speculation in a metal mine is sagacious, if the probable risk is compensated by the probable gain. As Mr. Hoover says, "there is an inherent speculation in mining, and it is this speculation that attracts." It attracts those that understand. It is the spirit of adventure that stimulates the best kind of mining. For instance, the controllers of the Homestake mine have spent 15 million dollars in 15 years on the Cerro de Pasco; they have received their money back and 100 per cent. added thereto, equal to about 7 per cent. in the 15 years, and now they have proved ore sufficient to last for 20 years. That is what I call a fine adventure!

The speculative side of mining has an attractiveness that is at the bottom of the energy with which it is followed, and when you bring it to the dead level of a steady investment you will find that the man of ordinary shrewdness saves time by going straight to his broker and buying bonds or consols. This does not mean that one is justified in playing the fool and expecting miracles to happen. The risk of mining should not be increased needlessly by human aberrancy. Mining enterprises come to grief often not so much on account of the failure to attain an investment basis, but because they are not put on a business basis. Even if the occurrence of ore in nature be erratic, and mining as a consequence be hazardous, there is no justification for piling human foolishness on top of nature's vagaries.

A large part of public participation in mining is done by means of share-buying; this is a secondary and a less desirable form of speculation, as compared with the ownership or part-ownership of mines by individuals, partnerships, or small syndicates. It is a legitimate means, however, of distributing risk and of applying collective capital to undertakings too burdensome for an individual or a syndicate. It produces a fluctuating ownership. In practice, whatever may be his theory, the American 'investor' does not buy mining stocks to keep. Whatever he calls such holdings, he treats them as as 'speculations'; he does not put them away for the sake of their dividend yield; he is always ready to realize upon them at an enhanced price; he buys them to sell. It has been said that the ownership in an American mining compauy changes, on average, every five years. Hence the mysteries of amortization do not interest most of our people. They are looking for a quick turn-over, not a long-time investment. The individual owner of a mine rarely keeps it when it grows to a size involving a large amount of capital; he spreads the risk

and gathers his winnings by disposing of the mine to a public company. Long-continued private ownership of a profitable mine is rare. W. B. Bourn and his father before him have controlled the Empire mine at Grass Valley, California, for 50 years, and I may add that this mine has been worked uninterruptedly for 65 years! It has proved a real investment, although started, of course, as a speculation. I venture to say, however, that if anybody were to buy it today on Mr. Bourn's valuation, or on that of an equally competent appraiser, he would be compelled to take it as a 'speculation,' for the simple reason that the odds are largely against the Empire mine continuing to be worked profitably in the future for any such length of time as in the past.

Of well-conducted mining ventures it can be said that they meet with a measure of success as large as, if not larger than, an ordinary manufacturing enterprise. I make no apology for mining, it has been—and is still—a glorious adventure for the youth of the world, for those young in spirit as well as in body. To mining we owe the exploration of the far corners of the earth and the development of its waste places. From the days of the Argonauts to that of the beach-diggers of Nome the call of adventure has caused men to go forth into the wilderness and prepare the way for the establishment of industry, for the extension of civilization, for the making of homes, which is the best fruit of human toil. If we stifle that spirit of adventure between formulae, if we suppress it by the maxims of an unreasoning caution, we shall shrivel a great industry into a picayune trading that will commit suicide in due course. No; risk is the very essence of mining; it is its life, and the true miner faces the risk with the cheerful confidence of the men that made the world more spacious "in the times of great Elizabeth," of the Argonauts of the Golden Age in California, of the trappers and coureurs du bois who opened up the great North-West.

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